

REMARKS

Upon entry of the present amendment, claims 1, 5, 9 and 12 will have been amended to more clearly recite the claimed subject matter. More particularly, claims 1 and 9 will have been amended to clarify that the processing performed on the video data is reduced based on the determined throttling amount. Claims 5 and 12 will have been amended to recite that the measure of computational processing power required to decode video data and the measure of processing capability of the decoder are received by the throttler from the decoder, which is in turn controlled by the determined throttling amount.

Also upon entry of the present amendment, claims 21-25 will have been submitted for the Examiner's consideration. Claims 21 and 24 are substantially based on the subject matter of claims 1 and 9, respectively. However, as the Examiner appears to equate the term "throttling," when used in conjunction with a processor for any reason, with the specific functionality claimed in the present invention, new claims 21-25 recite the specific functionality of the claimed embodiments without referencing this term. Applicants respectfully submit that all pending claims are now in condition for allowance.

In the above-referenced Official Action, the Examiner rejected claims 1, 4, 5, and 8 under 35 U.S.C. § 103(a) as being unpatentable over LIU (U.S. Patent No. 5,680,482) in view of STIFLE et al. (U.S. Patent No. 4,633,462), as discussed in the previous Office Action, dated December 31, 2003. The Examiner rejected claims 9-13 under 35 U.S.C. § 103(a) as being unpatentable over LIU in view of STIFLE et al. and BOYCE et al., as discussed in the previous Office Action. The Examiner rejected claims 2, 3, 6 and 7

under 35 U.S.C. § 103(a) as being unpatentable over LIU in view of STIFLE et al. and further in view of MALLADI (U.S. Patent No. 5,818,532), as discussed in the previous Office Action. Applicant respectfully traverses these rejections, at least for the reasons stated below.

The embodiments of the present invention recited in claims 1-13 and 21-25 are generally directed to reducing the processing power requirements of a video decoder that receives and decodes incoming video data. With respect to claims 1-13, in particular, a throttling amount is determined using a measure of (i) the processing power required to decode at least one bitstream of the video data and/or (ii) the video decoder's processing capabilities, without requiring encoded throttling control data associated with the video data. The processing performed on the video data by the decoder is then reduced based on the determined throttling amount. In the subject embodiments, this control includes reducing the amount of processing performed on the decoded video data prior to displaying a picture comprising the decoded video data, and reducing a number of coefficients inverse quantized and inverse DCT transformed by selectively setting coefficients to alternate values.

As previously stated in the Response under 37 C.F.R. § 1.116, filed September 9, 2004, the Examiner relied on LIU et al. as the primary reference in rejecting claims 1-13. However, the Examiner asserted only that LIU et al. teach (i) measuring processing power required to decode a bitstream of video data and (ii) measuring a decoder's processing capability. The Examiner admitted that LIU et al. do not disclose controlling computational processing requirements of the decoder based on a throttling amount. Further, LIU et al. do not measure required processing power and decoder processing

capability for the purpose of determining a throttling amount. Rather, LIU et al. use these measures merely to allocate buffers. *See* steps 372, 374; col. 13, lines 55-59.

The Examiner asserted that STIFLE et al. merely teaches determining a throttling amount without requiring encoded throttling control data associated with the video data. However, the “throttling” discussed by STIFLE et al. relates only to adjusting the timing of retransmitting a reverse channel signal from a remote subscriber in a CATV environment whenever the originally transmitted signal collides with a reverse channel signal from another remote subscriber. The signal is retransmitted repeatedly, if necessary, after respectively determined sequential delays. The length of these delays can be “throttled” to attempt to avoid future collisions involving the retransmitted signals, thereby stabilizing the system. *See* col. 4, lines 53-57. In other words, STIFLE et al. teach determining a “throttling” amount for adjusting a delay time for retransmitting data, not for controlling processing of video data by a decoder, as in the present invention.

In his Advisory Action, dated October 22, 2004, the Examiner dismissed Applicant’s arguments, asserting that STIFLE et al. teach controlling the computational processing requirements of the decoder (110) based on a throttling amount. “In other words, based on the broad interpretation of the claimed limitation, controlling/reducing processing requirements is met by regulating its own transmission of data, since regulating the transmission of data inherently requires controlling and/or computing processing requirements so as to eliminate the overhead bandwidth.” (Emphasis added). Clearly, regulating retransmission intervals of data does not require reducing the computational processing performed on video data by the video decoder, as now recited in claims 1 and 9. Also, STIFLE et al. do not teach the throttler receiving a measure of

computational processing power required to decode the video data and a measure of a processing capability of the decoder (by which the throttling amount is determined) from the video decoder, as now recited in claims 5 and 9.

Also as previously asserted, neither LIU et al. nor STIFLE et al., alone or in combination, teach reducing computational processing of video data performed by a video decoder based on a throttling amount (or based on the processing measurements, for that matter, as recited in claims 21-25). In short, the Examiner has identified two discrete, unrelated references, one to teach “measuring” and one to teach “throttling” in the abstract, but otherwise bearing no relation to reducing the processing performed by a video decoder on video data, which is central to the claimed invention. The Examiner simply has not identified any reference to teach controlling processing of video data based on the measuring and/or the throttling. Measuring required processing power and decoder processing capability to allocate buffers, and throttling sequential retransmission delays to prevent signal collisions, simply do not combine to teach reducing processing power requirements based, in part, on a throttling amount that is determined through the measuring process.

For at least the reasons stated above, Applicant respectfully submits that independent claims 1, 5, 9, 12, 21 and 24 have been shown to be allowable. With regard to claims 2-4, 6-8, 10-11, 13, 22-23 and 25, Applicant asserts that they are allowable at least because they depend from allowable independent claims 1, 5, 9, 12, 21 and 24, respectively.

Furthermore, with respect to claims 9 and 13, the Examiner relied on BOYCE et al. only to teach setting coefficients to different values. Therefore, BOYCE et al.

admittedly do not overcome the shortcomings of LIU et al. and STIFLE et al. noted above. With respect to claims 2, 3, 6 and 7, the Examiner relied on MALLADI et al. only to teach limiting a function of at least one post filter or one format conversion filter. Therefore, MALLADI et al. admittedly do not overcome the shortcomings of LIU et al. and STIFLE et al. noted above. Accordingly, withdrawal of the rejections based on any combination including the LIU et al., STIFLE et al., BOYCE et al., and/or MALLADI et al. references is respectfully requested.

In view of the herein contained amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of previously asserted rejections set forth in the Final Official Action, together with an indication of the allowability of all pending claims, in due course. Such action is respectfully requested and is believed to be appropriate and proper.

Should the Examiner have any questions concerning this Amendment or the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,  
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